12-1989

California's Environment and the International Agenda

Senate Committee on Toxics and Public Safety Management

CALIFORNIA'S ENVIRONMENT AND THE INTERNATIONAL AGENDA

By Senator Art Torres, Chairman
CALIFORNIA STATE SENATE COMMITTEE ON TOXICS
AND PUBLIC SAFETY MANAGEMENT

Background paper prepared for:
Nova Spes
Man — Environment and Development:
Towards A Global Approach

December 10 — 14, 1989

451-S

C A L I F O R N I A L E G I S L A T U R E

SENATE COMMITTEE ON TOXICS

AND PUBLIC SAFETY MANAGEMENT

ART TORRES
CHAIRMAN

December 1989

Dear Friends:

The Nova Spes Symposium on Man-Environment and Development: Towards a Global Approach is a critical chance for policy makers to define the role and responsibility of the International Community in protecting and improving the quality of the environment.

To aid in the discussion, I have prepared a brief assessment of the environmental issues facing the State of California in the 1990's. The problems faced in California are similar to many in the developed world. At the same time, we share a close community and environment with the developing nations of Mexico and Central America.

The challenges we face which are of critical importance for California include:

- Improving Air Quality

  This means dealing with direct acute and chronic effect of pollution in our urban areas as well as the widespread effects of ozone depletion, greenhouse effects and acid precipitation.

- Improving and Maintaining Water Quality

  Surface and groundwater quality must be protected from further toxic contamination. California also faces international challenges from the pollution of international waterways, shared international groundwater aquifers, and ocean contamination along our 840 mile coastline.

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- Reducing the Generation and Disposal of Hazardous Waste and Solid Non-hazardous Waste

  The need to reduce the generation of dangerous chemical waste must be based on a reduction in the use of toxic chemicals. There is a clear need to recycle materials and reduce the use of chemicals thereby reducing the environmental and economic cost of future disposal.

- Strategy for Action

  The underlining philosophy for environmental quality must be re-examined.

  The fundamental elements of a strategy must include:

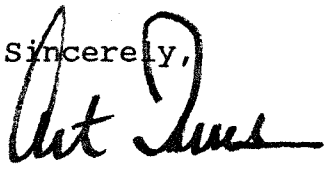
  - Waste Avoidance and Source Reduction

  - Integrated Multimedia Environmental Protection

  - An integrated environmental program recognizing that environmental contaminants must not be transferred from one media to another. Likewise, we must recognize that shifting the environmental burden from the industrial states and countries to other states and countries will result in increased global environmental damage.

The need for a new vision of our responsibility to the environment is critical. A new environmental ethic and a set of mechanisms to implement that ethic should be our goals for this gathering.

Sincerely,



ART TORRES

CALIFORNIA'S ENVIRONMENT AND THE INTERNATIONAL AGENDA

Introduction

In many ways California is a world leader. In terms of economic production, computer capability, scientific achievement, and transfer of goods and services, California has made major breakthroughs. These achievements have made it possible for the state to absorb and utilize the talents of a rapidly expanding population. These gains have not been made, however, without major costs to the environment of California and the planet.

This paper presents background information on California, identifies environmental threats, describes current efforts to protect the environment, and suggests further steps which are needed to avoid environmental deterioration.

I. BACKGROUND INFORMATION

Land Area. The land area of California (159,000 square miles) is the third largest of all the states in the United States. The state contains widely varied landscapes including large valleys, rolling hills, inland deserts, high ridge mountains, and 840 miles of coastline. Almost half of the state's land area is government-owned (49%); consisting of forests, parks, rangeland, deserts, and other protected areas. A significant portion of California's agriculturally productive land has been reclaimed from arid lands by means of vast federal and state water projects that store and transfer water.

Population. California, with a population of 28 million people, is the most populous of all the states. California's population is growing at almost two and one-half times the national rate. Last year (1988), California's population increased by 660,000 people. Of these, 300,000 were added by births to Californians, 250,000 were added by foreign immigrants, and the remaining 110,000 were new arrivals from the other 49 states of the nation.

Economy. California's economy is the largest of all the states in the nation. If California was a separate country, its economy would be the sixth largest of all nations. California's economy is growing slightly faster than the national average (3.8% verses 3.6% nationally). California's gross product is about the size of Italy's or the United Kingdom's, produced by a population half as large as that of either country. Total personal income in California during 1988 was $534 billion, or more than 13% of the nation's total.

The state has a very diversified economy. Among the major industries are: agriculture, electronics, aerospace, tourism, foreign trade, construction, business services, finance, lumber and paper, printing, chemicals, plastics, apparel, furniture, primary metals, and metal fabrication.

Energy Production and Use. Oil and gas provide about 82 percent of all energy used in California. Oil alone provides 53 percent of all energy used in the state. California produces about 13 percent of the nation's domestic crude oil and is the fourth largest oil producing state. California's proven oil reserves are estimated at 5.2 billion barrels. Almost half of California's oil comes from outside the state. Alaska provides 43 percent of the state's oil needs and 5 percent is imported from foreign countries.

II. THREATS TO THE ENVIRONMENT

California faces major threats to its air, land, and water. Moreover, because of the types and scale of its industries and vehicle use, these environmental threats have adverse national and international impacts.

Air Quality

A key environmental issue affecting California is the quality or lack of quality of its air. The state has the worst air pollution in the nation. Seventy-five percent (75%) of the nation's ozone exposure occurs in California with peak ozone levels that are three times the federal standard for healthy air. Southern California exceeded the federal ozone standard 175 times in 1988, or nearly half of all days in the year. Ten of the fourteen air basins in California exceeded the ozone standards as of the federal Clean Air Act deadline of December 31, 1987.

Motor vehicles are the largest single source of air pollution in California. In fact, motor vehicle emissions account for over half of smog producing pollution. There are 20 million cars in California which travel 60 billion miles annually. Traffic congestion has risen 15% every year since 1982 in California.

While auto emission tailpipe standards have brought new car emissions down considerably, other factors have slowed progress on reducing total auto emissions. Older cars continue to account for a significant fraction of total auto emissions, and their lives are continually extended. The efficiency of emission control devices is reduced without regular maintenance and inspection controls. Increases in both the number of total vehicles and total mileage driven have countered the effect of per-vehicle reductions.

Greenhouse Effect/Global Warming. The greenhouse effect, which at appropriate levels sustains life on earth, is primarily caused by carbon dioxide (49%), methane (18%), chlorofluorocarbons (14%), nitrous oxide (6%), and other gases (13%). Although the increasing greenhouse effect is a global problem, California is a significant contributor to it. With only about 0.6 percent of the world's population, California creates about 1.5 percent of the world's carbon dioxide, the major greenhouse gas.

Scientists believe that the increasing greenhouse gas concentrations in the atmosphere will increase average global temperatures by up to 8 degrees Fahrenheit within the next century. Although virtually all scientists believe strongly that the Earth will warm, they are not sure whether significant warming has already occurred. Increased global warming could have disastrous consequences in California, including the inundation of existing shorelines, encroachment of saltwater as far as 70 miles inland (Sacramento, California), more frequent and severe droughts in summer, flooding in the winter, loss of agricultural production, increased energy demands, and the extinction of many plant and animal species.

California's contribution of carbon dioxide emissions likely will grow significantly in the future. The California Energy Commission expects state residents and businesses to consume 55% more electricity in 2007 than they did in 1985. The state transportation department (Caltrans) estimates California motorists will drive about 50% more miles in 2010 than they currently drive in 1989.

Air quality is also threatened by municipal waste incinerators which emit ash and toxic particles.

Ozone Depletion. Most scientists agree that worldwide emissions of chlorofluorocarbons (CFCs) and other manufactured chemicals are contributing to the depletion of ozone in the stratosphere (upper atmosphere). Stratospheric ozone protects the earth from harmful ultraviolet radiation. During parts of the year, scientists believe that the Antarctic ozone "hole" is the size of the continental United States and as deep as Mount Everest is high. California industries and consumers contribute to the depletion of ozone.

Water Quality

California has perhaps the most elaborate water system in the nation, if not the world. The state is able to move enormous supplies of water from dams and reservoirs located in Northern California to dry portions of the state (Central and Southern California) to support agricultural production and population centers. In some instances, the water travels over 500 hundred miles. Groundwater supplies about 40% of the state's water supply.

Major concern exists about the quality of water because of contamination from industrial dumping, leakage from petroleum and other chemical tanks, as well as dumping from wastewater treatment plants.

Many areas of the state are at or beyond the capacity of their wastewater and sewer systems. Several large wastewater treatment facilities have failed to meet the July 1988 federal deadline for achieving full secondary treatment and are still discharging pollutants into the waters of the state. It will take several years to achieve the acceptable level of secondary treatment for these discharges.

In Los Angeles, continued pollution of Santa Monica Bay from inadequately treated wastewater has forced a moratorium on sewer hookups, seriously limiting new development within the Hyperion wastewater plant service area. Other communities have also imposed hookup limitations. Funding constraints are part of the reason. Federal funds are no longer easily available to expand sewage treatment facilities, as they were in the 1970's.

Since 1970, the state has expended approximately $7 billion in state and federal funds for wastewater treatment. In 1981, the principal funding program (the 1972 federal Clean Water Act program) was amended to reduce the federal grant from 75% to 55% and to restrict funding to projects which meet existing needs rather than provide reserve capacity. In 1987 a revised federal Water Quality Act was passed, phasing out the federal grant program altogether. The grant program has been replaced with a revolving loan program, funded with state and federal dollars, which users must repay. Federal support for the revolving fund will end in 1994.

To fill the gap, state and local funds have been provided through bond measures, fees, and other devices but not at levels sufficient to create a long-term surplus of capacity to serve new growth. For the next ten years, priority will be given to meeting the secondary treatment standards at existing facilities in order to improve water quality for the San Francisco and Santa Monica Bays. After these needs are met, funding priorities will shift to upgrading deteriorated facilities and providing additional capacity for growth. In the meantime, secondary treatment capacity is likely to continue to constrain growth in some areas of the state.

Contamination of surface and groundwater is another aspect of the water quality dilemma facing the state. Agricultural and industrial practices have caused toxic compounds to run-off or percolate into water supplies, raising costs and curtailing the

use of some water supplies. Even inactive sites sometimes present environmental problems. An example of this is the toxic mine drainage from the Iron Mountain Mine in Northern California. In that instance, water seeps through surface cracks on Iron Mountain, leaching toxic materials out of the old mine workings and into adjacent streams and eventually into one of the biggest rivers in the state, the Sacramento River.

The problem is compounded by the need to dilute concentrations of toxic compounds and other contaminants by increasing water diversions through ecologically sensitive areas such as the San Francisco Bay Delta, to avoid further damage to wildlife as well as to maintain water purity standards.

Groundwater overdraft can affect water quality as well, by facilitating intrusion of saltwater or groundwater contaminated with toxic materials into basins that supply drinking water.

Another concern is the quality of ocean waters near the California coast since in recent summers several beaches have been closed after finding evidence of medical waste.

Solid Waste

The quality of land is adversely affected both by what we do presently and by what we did with it in the past.

In 1987, 39 million tons of garbage (nonhazardous waste) were generated in California. Since 1980 there has been a 15% increase in the amount of garbage generated.

Californians generated and disposed of over 37 million tons of solid waste in 1987. Trends indicated this number will continue to increase as the state moves into the 21st century. Roughly 90% to this waste was disposed of in the state's 670 landfills. The remaining 10% was recycled or incinerated.

Up until now (1989), the state has placed primary emphasis in managing solid waste by disposing of it in landfills. There are various problems with this approach including the existence of too much garbage and too little space for it. In fact, over 100,000 tons of trash are buried daily in our state's landfills and major metropolitan areas will begin running out of approved landfill space in the next four years. Also, leaching of hazardous materials at landfills have been shown to pose serious contamination threats to soil, groundwater, and surface water. Gas migration from landfills has been shown to create air pollution and toxic air contaminants. Many landfills are in violation of state and federal operating requirements for such facilities.

Another problem is that some former municipal dump sites have been covered over and now have housing and schools located on or near them. This problem was identified earlier this year at an elementary school located in Cudahy, California, in which that school was constructed on top of the former "Cudahy Dump." In that instance, numerous children attending that school suffered headaches and stomachaches, were sleepy, lethargic, and/or confused over an extended period of time. The concern is that toxic materials dumped into the dump site years ago are now posing a health hazard. An investigation has revealed that 39 schools in the Los Angeles Unified School District are situated within 1/4 mile of a dump site.

Incineration of garbage has been another approach taken by some communities in California to reduce their garbage crises. Incineration can reduce material for landfill by 75 to 80 percent. Of the 35 plants originally proposed throughout the state, most were canceled due to public concern over potential air pollution and human health risks associated with incineration. One concern arises from the fact that landfills receive illegal dumpings of hazardous materials and that the trial tests on the safety of the emissions do not take into

account their presence. Another concern is that even if only non-toxic materials are burned at the incinerator, some of the equipment is disconnected after the monitored testing period which, thereby, causes unhealthy air emissions.

Hazardous Waste

An estimated 10 million tons of hazardous waste are generated in California each year by approximately 20,000 to 30,000 generators. Most of the wastes are treated or disposed on-site by the firms that generate them. An estimated two million tons of hazardous waste are both generated and shipped for treatment and disposal.

California has 60 major hazardous waste and toxic chemical sites on the national priority list for cleanup, in which federal funds may be used to help perform the clean-up.

California has 169,558 underground petroleum storage tanks, 75% of which are used to store gasoline and diesel fuel. The state's water quality control agency estimates that one percent of the 169,558 tanks are leaking.

As the cost of hazardous waste treatment and disposal in California has increased, the state has seen a trend toward increased out-of-state treatment disposal. Based on available information from hazardous waste manifests, the amount of waste exported from California has increased by over 450% in the past 3 years. The following table clearly shows this trend:

California Hazardous Waste Exports
1986 - 1988

Year	Waste Exports (In tons)
1986	39,188
1987	110,105
1988	219,152

While California has strict laws governing the treatment and disposal of hazardous waste, some of the surrounding states do not. This means that the environmental problems are being shifted out-of-state but not necessarily addressed.

The transportation of California's hazardous waste to other states is only part of the problem of California meeting its obligation to safely manage toxic waste. The increased movement of California and U.S. manufacturing facilities to Mexico raises a similar issue of the state's responsibility of the safe disposal of waste generated by California firms doing business in the US/Mexico border zone. There are approximately 1,500 maquiladoras, or subassembly plant facilities, operating along the U.S./Mexico border. These plants take advantage of Mexico's low labor rate to partially assembly numerous types of products, which are then shipped back to the country of origin for final assembly.

Under the provisions of a US-Mexico Toxic Accord, hazardous wastes that originated in the U.S. as raw materials are to be returned to the U.S. for treatment and disposal. It is understood that many maquiladoras are not complying with this provision of the Accord. This raises the question of how safely these wastes are being treated or disposed in Mexico. Environmental problems created affect both California and Mexico since they share both an underground aquifer and an air basin.

There is also evidence that hazardous waste (primarily spent solvents) generated in California are being illegally transported into Mexico to be used as product in industrial processes or for disposal. Again, the problems created in the one jurisdiction will affect the other because the two share a common environment.

III. CURRENT EFFORTS TO PROTECT THE ENVIRONMENT

In the battle to protect the environment, California has often been on the leading edge of change. In 1970, the state approved the California Environmental Quality Act in order to make it possible for communities to learn and reduce the adverse affects of proposed major projects upon the environment. During the 1970's the state enacted strict auto emission legislation, the California Coastal Protection Act, and established the California Energy Commission. The auto emission legislation required that any new automobile to be sold in the state in the near future meet standards more stringent than the domestic manufacturers were at the time meeting.

Proposition 65. In 1986, Californians overwhelmingly approved Proposition 65 demonstrating their widespread concern about water quality and toxics. Proposition 65 was a public initiative placed on the California ballot by grass-root environmental groups. The initiative process in California allows for legislation to be placed directly before the election board by citizen petitions.

Proposition 65, the 1987 Safe Water and Toxic Enforcement Act requires full disclosure of exposure to cancer causing chemicals in food, workplace, and drinking water. The act also prohibits the discharges of cancer causing chemicals into drinking water sources. The key element of the Act is the shifting of the burden of proof for cancer causing and reproductive hazards from the public agencies to those who wish to either use or discharge these chemicals.

Air Quality

In recognition that California's air pollution problems continue, in 1988 the Legislature and Governor approved the California Clean Air Act of 1988 (AB 2595 - Sher). This Act requires areas

not meeting clean air standards to achieve 5% annual reductions in emissions from sources of air pollution unless: 1) the state air resources board determines that an equivalent air quality improvement will be achieved through an alternate level of emission reduction, or 2) the state board determines that an area is unable to meet the 5% annual reduction despite the expeditious adoption of all feasible controls. This legislation also authorizes air pollution control districts to adopt regulations to require vanpooling, flexible work hours, and other measures to reduce vehicle usage.

The California Clean Air Act of 1988 also requires the state's air resources board to take whatever actions are necessary to achieve, with respect to vehicles and other mobile sources, a 55% reduction in emissions of organic gases, a 15% reduction in emissions of oxides and nitrogen, and the maximum feasible reductions in particulates, carbon monoxide, and toxic air contaminates by January 1, 1992.

At this point it is too early to tell how well this strict air quality legislation is protecting the environment. It is clearly headed in the right direction. The question is whether it is achieving sufficient results.

Additionally, in 1989 the California Legislature approved the following legislation to improve air quality: (Several of the bills, however, were vetoed by the Governor.)

1) An exemption of the incremental cost of alternative-fueled vehicles (cost above comparable conventionally-fueled vehicles) from the state sales tax. Also exempted from the stated sales tax was the cost of low-emission vehicle conversion kits. (SB 1006 - Leonard - Chapter 990, Statutes of 1989)

2) A requirement that local governments inspect facilities handling hazardous materials to determine if they are abiding by safe handling and storage practices. (Current law permits but does not require these inspections.) The legislation would have also required businesses to prepare risk management plans if they handled a significant quantity of acutely hazardous materials which may be instantly released into the atmosphere and pose a threat to the lives of the public. (SB 1049 - Torres - Vetoed by the Governor)

3) A requirement that the California Department of General Services buy low-emission vehicles, when it purchases vehicles, if the low-emission vehicles cost less than twice as much as the comparable conventionally-fueled vehicles. (SB 1123 - Rosenthal - Chapter 796, Statutes of 1989.

4) Authorization for air pollution districts that do not meet federal air quality standards to charge vehicle owners up to $4 per year at the time a vehicle is registered with the state department of motor vehicles. The revenues would be used for programs to reduce motor vehicle emissions. (AB 1130 - Sher - Vetoed by the Governor)

5) Authority for civil penalties of up to $25,000 to be assessed against violators of pollution control district abatement orders without the need to show the violation was intentional or a result of negligence. (AB 1737 - Friedman - Vetoed by the Governor)

6) A requirement that the state's air resources board conduct an inventory of the sources of greenhouse gases. This proposed law would have also required the state's energy commission to: a) study the state's progress in reducing emission of carbon dioxide from the combustion of fossil fuels, b) to study the benefits, in terms of reducing global warming, of increasing the surface

reflectance of buildings and other developments such as streets and highways, and c) to study the potential for reducing global greenhouse gases by plantings in non-desert, urban environments. (SB 427 - Torres - Vetoed by the Governor)

7) A requirement that the state's air resources board conduct an inventory of the source of greenhous gases. The proposed law also would have established a state goal to reduce emissions of greenhouse gases by at least 20% by the year 2005. Additionally, the bill would have required the state's energy commission to: a) evaluate the role of electricity generation in producing greenhouse gases and how such emissions could be reduced, and b) consider the greenhouse gas emissions in its regulatory proceedings. (AB 2151 - W. Brown - Vetoed by the Governor)

8) A requirement that the Governor's research office determine if the California Environmental Quality Act (CEQA) should be amended to reflect global warming issues. (AB 2360 - Sher - Chapter 218, Statutes of 1989)

9) A requirement that owners and operators of commercial refrigeration facilities recycle chlorofluorocarbons (CFCs) in order to help avoid ozone depletion. (SB 116 - Rosenthal - Vetoed by the Governor)

10) A requirement that the state's air resources board adopt a regulatory program to reduce CFC emissions in the state. (SB 231 - Presley - Vetoed by the Governor)

11) A ban on polystyrene foam food service products after January 1, 1990, and a ban rigid polystyrene foam products after December 31, 1991. (SB 1192 - Marks - and AB 2020 - Cortese - both bills Vetoed by the Governor)

Water Quality

In 1989, the California Legislature passed a variety of legislation directed at maintaining water quality and preventing its degradation. Among the legislation approved were:

1) A requirement that the state's water quality control agencies establish a comprehensive program to identify and characterize toxic hot spots in enclosed bays and estuaries, to plan for the cleanup of the sites, and to amend water quality control plans and policies. This legislation also requires regional water quality boards to complete, by July 1993, a toxic hot spots cleanup plan and initiate a re-evaluation of waste discharge requirements for dischargers who have discharged all or part of the pollutants which have caused the hot spot. The state water quality board must submit to the Legislature by January 1, 1994, a consolidated statewide toxic hot spots plan. (SB 475 - Torres - Chapter 269, Statutes of 1989)

2) A requirement that local agencies revoke permits for underground storage tanks containing petroleum which do not meet specified financial responsibility requirements. This legislation also requires the state's department of commerce to make loans available to businesses to upgrade, replace, or remove petroleum underground storage tanks to meet applicable local, state, or federal standards and to take corrective actions. (SB 299 - Keene - Chapter 1442, Statutes of 1989)

3) A requirement that the state's water quality control board impose minimum fines based on the degree of toxic water contaminants. (SB 601 - Hart - Chapter 1445, Statutes of 1989).

4) A requirement that plans be developed for the reduction of contaminants in drinking water systems. (AB 21 - Sher - Chapter 823, Statutes of 1989)

5) Establishment of the Water Quality Program to improve the quality of agricultural drainage water. (AB 444 - Isenberg-Chapter 715, Statutes of 1989)

6) Would have required owners of public and private water systems to warn customers on the level of contaminants in drinking water which pose a potential risk to human health. (AB 1834 - Murray - Vetoed by the Governor)

7) A requirement that the state inspect aboveground petroleum storage tanks. Owners or operators of the tanks would be required to establish a monitoring program to detect any releases of petroleum to the soil or water, including groundwater or surface water. Tanks owners or operators would pay a fee to the state to fund the inspection program. (SB 1050 - Torres - Chapter 1383, Statutes of 1989)

Solid Waste Reduction and Recycling

In 1986, the Legislature and Governor approved the California Beverage Container Recycling and Litter Reduction Act. This relatively new law requires beverage container distributors to pay the state a redemption payment per container which is used to fund the state's beverage container recycling efforts. These efforts include the certification of recycling centers, awarding of grants and contracts for litter abatement, recycling, and public information and promotion.

It is estimated that 67% of all aluminum beverage containers are presently being recycled. Significantly lower percentages of glass bottles are being recycled.

Since the California Legislature recognizes that continuing to manage solid waste in the usual manner was not possible or desirable as a state policy, it enacted a package of bills in 1989 that focus on reducing and recycling waste. The following

are the legislative bills in the package:

1) A bill to establish an integrated waste management system to reduce, recycle, and reuse solid waste generated in the state to the maximum extent feasible, to improve regulation of existing solid waste landfills, to ensure that new solid waste landfills are environmentally sound, to streamline permitting procedures for solid waste management facilities, and to specify the responsibilities of local governments to develop and implement integrated waste management programs. The bill also establishes a new six member full-time board responsible for the implementation of the program. (AB 939 - Sher - Chapter 1095, Statutes of 1989)

2) A bill to provide a tax credit on the purchase of equipment which is used to manufacture finished products from recycled materials. (SB 432 - Alquist - Chapter 1090, Statutes of 1989)

3) A bill to direct the newly established Integrated Waste Management Board to implement programs to promote a statewide integrated waste management system. This would include resource recovery, recycling, and composting, and to provide technical assistance and public information regarding integrated waste management. The bill would also require the State Board of Education and the State Department of Education to include integrated waste management within the science curriculum of schools. (SB 1322 - Bergeson - Chapter 1096, Statutes of 1989)

4) A bill to require all state departments to establish practices for the purchasing of recycled products and to give preferences to these products. (AB 4 - Eastin - Chapter 1094, Statutes of 1989)

5) A bill to require certain consumers of newsprint use at least 25% of their newsprint in the form of recycled-content newsprint. (AB 1305 - Killea - Chapter 1093, Statutes of 1989)

6) A bill to require the state's transportation department to contract for road paving and subsurface materials utilizing recycled materials. (AB 1306 - Killea - Chapter 1092, Statutes of 1989)

7) A bill to establish a comprehensive state program for regulating the disposal of used tires and encouraging alternatives to their landfill disposal. (AB 1843 - W. Brown - Chapter 974, Statutes of 1989)

Hazardous Waste

Minimizing the use of hazardous substances and the generation of hazardous waste is the best way to reduce the environmental threat of leaking landfills, toxic air emissions, and contamination of the state's water resources. California expends major efforts on monitoring and attempting to mitigate the environmental effects of toxic materials generated by California industries. The state's toxics office (Toxics Divisions of the Department of Health Services) expends over $150 million annually to investigate and oversee the cleanup of toxic waste sites. The state has numerous toxic waste sites including many illegal sites and some require huge sums of money to cleanup. In one case, the Stringfellow Toxic Site, the state is attempting to recover $200 million to $800 million in cleanup costs from polluters.

In 1989, the Legislature passed legislation to reduce, regulate, and cleanup hazardous wastes. Among the relevant bills are:

1) A bill which requires generators of hazardous waste to conduct a review of their operations to determine opportunities to reduce the hazardous waste generated. The bill also requires that a plan be developed based on the generator's review delineating the activities the generator will implement to reduce hazardous waste. (SB 14 - Roberti - Chapter 1218, Statutes of 1989)

2) A bill which requires corporations which use, generate, or store hazardous materials, including hazardous waste, to pay an annual fee to the state. The bill also establishes a base rate of $20,000 annually as a facility fee upon operators of hazardous waste storage, treatment, and disposal facilities. Additionally, the bill establishes a base rate of $2,400 annually upon generators of hazardous waste. The state is required to use these revenues to regulate and oversee the cleanup of hazardous wastes. (SB 475 - Torres - Chapter 269, Statutes of 1989)

3) A bill which revises the disposal and imposition of cleanup taxes on hazardous wastes transported both within-state and out-of-state for treatment. (AB 41 - Wright - Chapter 1032, Statutes of 1989)

IV. FURTHER STEPS NEEDED TO AVOID ENVIRONMENTAL DETERIORATION

California not only needs to enact the proposed legislation that was vetoed by the Governor in 1989 (noted above), but also needs to take the following steps:

1) Adopt stricter legislation to protect the agricultural environment. Protections in this arena regarding reduced use of pesticides or use of alternative pest controls will make it possible to better protect the quality of groundwater and the health of agricultural workers as well as consumers.

2) Work with the federal policymakers to adopt cooperative agreements with Mexico to protect the underground water and air basins shared by the United States and Mexico. These agreements can include monitoring, restrictions on the use of certain types

of production or uses (e.g. vehicle and fixed plant emission standards, and vehicle use patterns), and research on alternative production and disposal methods that will provide greater environmental protections.

3) Adopt a growth management policy for California which incorporates the multi-media (air, water, and land) considerations. Besides the multi-media considerations, this approach would require that urban growth be planned for on a regional basis rather than only a local basis.

This is essential to resolving transportation needs and air quality problems, for example. There already exist three instances in which, in a more limited fashion, regional efforts have been fairly successfull: a) the San Francisco Bay Conservation and Development Commission, b) the California Coastal Commission, and c) the California-Nevada Tahoe Regional Planning Agency.

4) Work with federal policymakers in an effort to forge an international trade agreement which includes a provision that if the product was made using environmentally safe methods, the product could be imported on a duty-free basis. This would serve as an economic incentive for producers and nations to use environmentally safe techniques.

5) Work with federal policymakers to try to establish an international trade agreement which includes a provision that if the product was made using environmentally destructive methods, the product would be subject to import duties. This would serve as an economic disincentive for producers to use environmentally destructive methods.

While California has recently made genuine efforts to cleanup its environment (air, water, and land), it has not done enough to reduce or prohibit the use of hazardous substances or practices which generate toxic materials. California has yet to recognize the major effects of its environmental decisions upon both the state and the planet. Their impact is felt on the ecology, human living conditions, and the economy.

California must recognize its immense responsibility upon the world environment. The state must begin to approach environmental concerns on an integrated, multimedia basis. It only follows that if the world is interdependent with regard to its environmental media i.e., its air, water, and land, then it is necessary to use international or global efforts in an integrated media fashion in order to resolve its environmental problems.

If we, as a state, nation, or community of nations, are serious about reversing the damage we have incurred upon our global environment, then we must begin to demand that major and medium-sized projects incorporate integrated approaches. For example, we know that whenever jurisdictions grow in population size that more housing, roads, and industries are constructed and more schools, parks, and public utilities are needed.

If we move in a fragmentary fashion, then each of these components will be considered and acted upon as if its existence were independent of the others. We know that is not true but we continue to work in that fashion because conceptually it is simpler and because often it is economically advantageous to ignore the other components. That is why schools are often left out of the plans to build more housing. An integrated approach in this arena demands that with regard to major projects there be equal consideration given to the needs of housing, transportation modes, industries, and schools, parks, and utilities.

In California, there exist the means to both educate and motivate the people to act in our state's environmental self interest. In fact, every few years we do that by placing on the state ballot and advocating on the mass media the benefits to be gained from such things as coastal protection, state parklands, water quality, and avoidance of toxic materials. Other jurisdictions throughout the globe have their own means to do the same. Sometimes the means are unique but nevertheless effective.

The keys to addressing environmental problems appear to be to obtain the best available information from the scientific community, require that such information be incorporated into the policy debate, require that the implementation of major projects utilize the integrated multimedia approach, allow for citizenry action if the process is not followed, provide incentives to entities which follow the more environmentally sound paths, and provide strong enforcement sanctions against those who despoil our environment.

We also need to change some of our goals as a society. Greater emphasis needs to be placed on reducing the use of hazardous materials. Oftentimes there exist non-harmful substitutes for a product (beetles for pesticides or paper cups for Styrofoam cups) but we elect as a society to tolerate the harmful products. We must increase our efforts to reverse the decades of environmental degradation.

Further, if California is truly going to make environmental strides, it must work together with other jurisdictions throughout the world to both identify the common problems and the common solutions that are necessary. Typically, researchers consider that in order for international cooperation to occur, there must be direction from the various countries. While that is true to a great extent, we must not forget the important scientific and policy role which states play in the United

States. California is one state that due to its immense size, knowledge base, and energy plays a leading role in seeking solutions to major environmental problems. Only some national general direction and funding would be needed.

California is a key jurisdiction on this planet that is only now beginning to realize its global impacts and responsibilities. It needs help in many areas but it can help in many other areas. We must face and address our challenges since we are one global environmental community.

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